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☐	L32	((switch$4 or chang$4 or alter$4) near5 (power or voltage) near5 plane) with (external$4 near3 (peripheral or device))	1
☐	L31	L29 and ((switch$4 or chang$4 or alter$4) near5 (power or voltage) near5 plane)	1
☐	L30	L29 same ((switch$4 or chang$4 or alter$4) near5 (power or voltage) near5 plane)	0
☐	L29	(port with (connect$4 near5 status))	993
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☐	L14	(connect$4 near2 (sens$4 or detect$4) near2 terminal)	9496
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☐	L11	l4 and usb	0
☐	L10	l4 and (plug near2 play)	0
☐	L9	l4 and (plug adj play)	0
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☐	L6	L5 same disconnect$4	0
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☐	L4	((plurality or multiple or several or different or two) near5 (voltage adj plane))	121
☐	L3	(motherboard or (mother-board) or (mother adj board)) same ((plurality or multiple or several or different or two) near5 (voltage adj plane))	2
☐	L2	(motherboard or (mother-board) or (mother adj board)) same ((plurality or multiple or several or different) near5 (voltage adj plane))	0
☐	L1	(motherboard or (mother-board) or (mother adj board)) same ((plurality or multiple or several or different) near5 plane)	96

END OF SEARCH HISTORY

L8: Entry 2 of 3 File: USPT Mar 17, 1992

DOCUMENT-IDENTIFIER: US 5097393 A
TITLE: Multilayer interconnect device and method of manufacture thereof

Brief Summary Text (9):
In addition to the signal lead layer, the interconnect device of the present invention also incorporates at least two other conductive layers or voltage planes, one being a ground plane and the other being a power plane. Ground or power voltages can be delivered to the ground and power layers either directly or by via connectors from the lead layer to the ground and power planes; and the ground and power planes are connected to selected leads in the signal lead layer by vias formed in the multilayer device to supply ground and power voltages to selected ones of the leads to the IC or the outside circuitry to which the IC is connected. The presence of both power and ground planes in close proximity to each other provides low power supply inductance which results in reduced switching noise, particularly when the device is used with advanced integrated circuits. The presence of both ground and power planes in the device which are connected by vias to leads in the lead layer also results in a device having improved and more versatile signal, ground and power distribution capabilities. The accuracy of line width control and line spacing and the presence of a voltage layer closely adjacent to the signal layer result in a device with improved impedance control characteristics and reduced signal crosstalk. The technology of the present invention has sufficient resolution to permit signal line densities as fine as 1 mil line widths on 2 mil centers. The completed device of the present invention is also a self supporting interconnect structure.

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L17: Entry 1 of 13 File: USPT Apr 11, 2000

DOCUMENT-IDENTIFIER: US 6049139 A
TITLE: Method and apparatus for detecting abnormality of cable having electrical conduction line surrounding power supply line used in car

Detailed Description Text (27):
FIG. 9 shows the connection of the short circuit sensor line drive department 71. Here, the short circuit sensor line drive department 71B1 and 71B2 of module B will be explained by way of an example. The short circuit sensor line drive department 71B2 will be partly described. The electrical conduction line 5 for the short circuit sensor is connected to the terminal 76B1 through the short circuit sensor terminal 17B1 of the port A of the module B1. On the contrary, relating to the module B2, it is connected to the terminal 76B2 through the short circuit sensor terminal 17B2 of the port.sub.-- B. The terminal 78B1 is connected to the microcomputer. The microcomputer judges the short-contact to the plus terminal of the battery, the ground fault, the disconnection and the normal operation of the electrical conduction line 5 for the short circuit sensor by watching the electric potential of the terminal 78B1.

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L17: Entry 2 of 13 File: USPT Jan 14, 1997

DOCUMENT-IDENTIFIER: US 5594695 A
TITLE: Sense amplifier control circuit of semiconductor memory device

Detailed Description Text (12):
The p-type sense amplifier driver control circuit 50G is comprised of a PMOS transistor 27 having a source terminal connected to an external power supply voltage and a gate terminal connected to the output node of the trigger circuit 50D, a first NMOS transistor 28 having a gate terminal connected to a first input line, an output line connecting a common terminal of the PMOS and first NMOS transistors 27 and 28 to a control terminal of the sense amplifier driver 1 and generating a p-type sense amplifier driver enable clock .phi.PSE, a second NMOS transistor 29 having a drain terminal and a source terminal connected between the source terminal of the first NMOS transistor 28 and a ground potential terminal, and having a gate terminal connected to the output node of the bias circuit 50E, a third NMOS transistor 32 connected between the drain terminal of the second NMOS transistor 29 and a ground potential, and having a gate terminal connected to a sensing clock DET generated in correspondence to the data transmission of the RAM port to the SAM port, and a device for controlling currents I1 and I2 flowing through the first, second and third NMOS transistors 28, 29, and 32, under a specific condition. The device for controlling currents I1 and I2 is comprised of a first PMOS transistor 30 having a source terminal connected to an external power supply voltage terminal and gate and drain terminals diode-connected to each other, and a second PMOS transistor 31 having both terminals connected between the drain terminal of the first PMOS transistor 30 and the output line, and a gate terminal connected to a ground potential terminal. The external power supply voltage terminal outputs an external power supply voltage ext. Vcc, and the internal power supply voltage terminal outputs an internal power supply voltage int. Vcc.

CLAIMS:

7. The sense amplifier control circuit as claimed in claim 1, wherein said sense amplifier driver control circuit comprises:

a PMOS transistor having a source terminal connected to said power supply voltage and a gate terminal which receives said trigger voltage;

a first NMOS transistor having a gate terminal which receives said trigger voltage;

an output line connecting a common terminal of said PMOS and first NMOS transistors to said control input of said sense amplifier driver;

a second NMOS transistor having a drain terminal connected to the source terminal of said first NMOS transistor and a source terminal connected to said ground potential and having a gate terminal which receives said bias voltage; and

a third NMOS transistor which operates as said driver element having a drain terminal connected to the source terminal of said first NMOS transistor and a source terminal connected to said ground potential and having a gate terminal as said control terminal connected to said sensing signal which is generated in

L17: Entry 10 of 13 File: USPT Aug 8, 1989

DOCUMENT-IDENTIFIER: US 4854153 A
TITLE: Automatic calibration apparatus for a partial gas pressure measuring sensor

Detailed Description Text (18):
In FIGS. 9A and 9B, a connector 31 is provided in the PCO.sub.2 sensor with terminals 32 and 33 which are short-circuited. A connector 34 is provided in the automatic calibration apparatus and has a terminal 35 connected to the input port 7 and to a DC power supply Vcc through a pull-up resistor 37 with a grounded terminal 36. Accordingly, if the PCO.sub.2 sensor 5 shown in FIG. 2 is not connected to the apparatus, a voltage Vcc is applied to the input port 7. On the other hand, if the PCO.sub.2 sensor 5 is connected to the apparatus, a voltage OV is applied to the input port 7 since the terminals 32 and 33 of the connector 31 in the PCO.sub.2 sensor 5 are connected to the terminals 35 and 36 of the connector 34 in the apparatus, respectively.

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L3: Entry 1 of 2 File: USPT May 26, 1998

DOCUMENT-IDENTIFIER: US 5757171 A
TITLE: On-board voltage regulators with automatic processor type detection

Brief Summary Text (4):
Processors which are typically installed in a mother board are of two types: unified voltage plane (UVP) processors and split voltage plane (SVP) processors. An example of a UVP processor is a Pentium.RTM. processor (model #P54 CTA), and an example of an SVP processor is a Pentium.RTM. processor MMX (model #P55C) (both designed and manufactured by Intel Corporation). Both types of processors include two voltage planes--a core voltage plane and an I/O (Input/Output) voltage plane--each of which must be regulated. A flexible mother board should ideally support either type of processor interchangeably, and thus should make allowance for the differing voltage regulation requirements of UVP and SVP processors.

Brief Summary Text (6):
In a UVP processor, the core voltage plane and the I/O voltage plane are coupled inside the chip on which the processor is implemented, thereby enabling a single voltage regulator to power both the mother board core and the I/O voltage planes with the same voltage. By contrast, an SVP processor has a core voltage plane and an I/O voltage plane that are separately coupled to the corresponding voltage planes on the mother board. In other words, unlike a UVP processor, the two voltage planes are not coupled to one another inside the processor. Moreover, the two voltage planes of an SVP processor may likely require two different voltages. The SVP configuration thus requires two separate voltage regulators on the mother board to supply voltage to the core and I/O voltage planes independently.

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L3: Entry 2 of 2 File: USPT Apr 18, 1972

DOCUMENT-IDENTIFIER: US 3657701 A
TITLE: DIGITAL DATA PROCESSING SYSTEM HAVING A SIGNAL DISTRIBUTION SYSTEM

Detailed Description Text (8):
Referring now to FIG. 3a, a section view of a motherboard is shown which illustrates the manner in which the motherboard is constructed. The illustrated motherboard is comprised of three signal planes 61, 63 and 65 and two voltage planes 62 and 64. The motherboard is preferably constructed of epoxy-glass, with the signal transmission lines and voltage distribution lines being copper strip-line etch. A plurality of metal feed-throughs, or plated holes, 67 extend through the motherboard as shown. The appropriate feed-throughs are connected at various ones of the signal and voltage planes, as is illustrated in FIG. 3.

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L8: Entry 1 of 3 File: USPT Oct 28, 2003

DOCUMENT-IDENTIFIER: US 6639389 B2
TITLE: Arrangement and method for protecting multiple voltage supply systems against voltage arc-over between different voltage planes and against pole reversal from the outside

Brief Summary Text (16):
Present-day motor vehicle supply systems have a supply system management, which distributes the available power reserves to the system consumers on the basis of a priority list. Known supply systems therefore have a supply system control device, which can purposely switch the consumers in the supply system on and off. This functionality of a supply system control device is also used for multiple voltage supply systems. In connection with the invention, the functionality of known supply system control devices can advantageously be expanded to narrow down the location of the undesirable arc-over in the supply system in case of a voltage coupling between the two voltage planes of a two-voltage supply system. For this, the complete high-voltage plane of the supply system with all consumers and power branches is initially turned off. Following this, the individual power branches in the high-voltage plane are switched on by the supply system, one after another, in accordance with a priority list. Following each switch-on of a power branch in the high-voltage plane, the voltage-limiting unit in the low voltage plane simultaneously, and parallel thereto, conducts a check as to whether the voltage in the low-voltage plane increases above the permissible nominal value. If the voltage in the low-voltage plane increases above this nominal voltage inclusive of a tolerance range, the undesirable voltage arc-over or short circuit must be searched for between the two voltage planes, in the last power branch switched on by the supply system in the high-voltage plane. As a result, the multiple voltage supply system has a diagnostic capability and the supply system control device is expanded by a diagnostic function for localizing undesirable voltage arc-over between the different voltage planes of the supply system.

CLAIMS:

10. A method according to claim 7, wherein the supply system control device is connected to a high-voltage power distributor for a plurality of power branches in the high-voltage plane; and said method further comprises: in case of a voltage arc-over shutting down all power branches in the high-voltage plane in a first step: thereafter, in an additional, second step, switching on a first power branch in the high-voltage plane and adjusting the output voltage of generator upward via the nominal voltage of the low-voltage plane; in a third step, checking the voltage in the low-voltage plane; and, cyclically repeating the second and third steps successively for additional power branches in the high-voltage plane until a voltage increase occurs in the low-voltage plane following the renewed switching on of a power branch, and shutting down this power branch in case an excessive voltage increase in the low voltage plane is detected.

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L31: Entry 1 of 1 File: USPT Apr 6, 1993

DOCUMENT-IDENTIFIER: US 5200987 A
TITLE: Remote supervisory monitoring and control apparatus connected to monitored equipment

Detailed Description Text (98):
The programmed apparatus provided by the monitoring and control board 216 also connects and disconnects the spare board 220 from the equipment 201 by connecting and disconnecting power to the spare board 220. For this purpose, the control board 216 drives the digital output OUT 2 via an edge connector contact 243 an a copper trace 244 leading therefrom to control a power cut-off switch 245 which is also supplied with +5 volt power from the back plane 204 through the edge connector 212, an edge connector contact 246, and a copper trace 248. The switch 245 is similarly supplied with 0 volt ground potential from the back plane 204 through the edge connector 212, an edge connector contact 250, and a copper trace 252. The switch 245 provides power and ground to the remainder of the equipment components on the spare board 220 through copper traces 254 and 256, respectively.

CLAIMS:

1. A monitoring and control apparatus which monitors conditions of equipment and a power source at a work site, said apparatus comprising:

a programmable microprocessor and a microprocessor bus which carries signals to and from said microprocessor;

input ports connected to said bus providing status signals representing monitored conditions which are carried on said bus to said microprocessor;

output ports connected to said bus providing equipment control signals which are carried on said bus from said microprocessor;

memory means associated with said microprocessor;

operating means including programs and operating parameters stored in said memory means for causing said microprocessor

to process status signals and detect a fault condition by sampling the status signals and comparing with the operating parameters stored in said memory means,

to produce an alarm when it is determined that the fault condition qualifies as an alarm condition, and

to provide signals which represent the alarm condition; and

transmitting/receiving means including a modem and telephone interface for automatically dialing out over a telephone network in response to an alarm, for transmitting information as to the alarm in the form of data signals and/or synthesized voice signals over the telephone network to a remote location in

L27: Entry 2 of 2 File: USPT Jul 2, 2002

DOCUMENT-IDENTIFIER: US 6415387 B1
TITLE: Low power mode computer with simplified power supply

Detailed Description Text (13):
Turning now to FIGS. 11 through 15, third and fourth applications of the present invention are depicted emphasizing expanding the flexibility of network computers by introducing a low power mode and local permanent storage to network computers lacking in facilities utilized by conventional computers to implement these desirable functions. FIG. 11 depicts a motherboard 302 of a network computer 300 (shown in FIG. 14) according to the invention. Motherboard 302 is suitably attached to an interior surface of a chassis 313 and includes, like the previously discussed motherboards 102 and 202, a processor 104, core chip set 106, a clock generator 108, and a system memory indicated by reference numeral 112. In one embodiment, motherboard 302 further includes a network interface 320 discussed in greater detail below. Motherboard 302 is powered by a power supply 350, which receives conventional 120 V AC signal as its input via power cord 352 and delivers power signals to motherboard 302 via power harness 354. It will be appreciated that conventional computers utilize power supplies such as the ATX type power supply familiar in the microprocessor based computer industry. These power supplies are designed to deliver power to a plurality of power planes of the computer's motherboard. A power harness of typical microprocessor based computers may routinely include 16 or more wires to deliver ground, 5V, 12V, and 3.3V signals. Conventional power supplies may supply multiple "copies" of a given voltage for powering multiple power planes of the computer. Multiple power planes enable simple implementation of low power modes in conventional computer systems. Subsystems and peripheral devices which are desired to be powered down in a low power mode of a conventional computer are connected to one or more power planes that are cutoff in low power mode. Devices that are desired to be operational or functional in low power mode are connected to one or more power planes that are left powered during low power mode. When an event requiring a wake up of a conventional computer is detected by a device that remained functional in low power mode, the device can initiate a system reset, which permits each of the power planes to deliver power to its corresponding devices thereby waking up or powering up the entire system or any combination of subsystems restricted only by the number of power planes available.

Detailed Description Text (14):
Despite the flexibility and ease of implementation offered by conventionally designed, multiple plane motherboards and power supplies, these advantages are achieved only at the cost of a significantly increased motherboard, power supply, and overall system cost. To combat the cost of conventionally powered computers, the network computers contemplated herein such as network computer 300 preferably use a power supply 350 that powers a motherboard such as motherboard 302 via a single power plane. Constraining power supply 350 and motherboard 302 to a single power plane design lowers system cost, but necessitates a different approach to achieving a low power mode. Because computer 300 includes only a single power plane, low power mode cannot be achieved by simply cutting off power to the power plane. To achieve the desirable benefits associated with low power operation, computer 300 incorporates a software driven power down sequence that is activated

L26: Entry 1 of 2 File: USPT Aug 29, 1989

DOCUMENT-IDENTIFIER: US 4862056 A
TITLE: Interface for an electrical device

Brief Summary Text (6):
In these input-output interfaces, at least nine components are necessary. These components include a resistor to protect from over current; a terminal at the sensor side of the resistor; a terminal at the buffer side of the resistor; a buffer; a terminal at the output side of the buffer; a signal line to connect the output of the sensor to a terminal at the sensor side of the resistor; a signal line to connect a terminal at the buffer side of the resistor to an input terminal of the buffer; and a signal line to connect the output terminal of the buffer with the input port of the electric circuit. Since each terminal serves to connect one component to another, it must be strong to assure a reliable conection. Accordingly, it is necessary to be able to provide for a large capacity. For example, in an integrated circuit of the dual-in-line package type, the volume of the package generally depends on the number of the terminals.

Current US Cross Reference Classification (1):
323/271

L33: Entry 2 of 10 File: USPT Jul 3, 2001

DOCUMENT-IDENTIFIER: US 6254424 B1
TITLE: Half-fitting detection connector

Brief Summary Text (20):
To achieve the above object, according to the first aspect of the present invention, there is provided a half-fitting detection connector which comprises a first connector housing including a fitting port formed therein, a first connection-detection terminal receivable in the first connector housing, a second connector housing fittable to the first connector housing, the second connector housing including an engagement portion, a second connection-detection terminal receivable in the second connector housing, and fittable to the first connection-detection terminal, the second connection-detection terminal including a spring portion which can be compressively deformed along a terminal fitting direction, a lock arm formed on the first connector housing, and substantially extending in a fitting direction of the first and second connector housings, the lock arm including a retaining projection, the lock arm retaining the first and second connector housings in a fitted condition when the retaining projection is engaged with the engagement portion of the second connector housing, and a screen plate formed on a distal end of the lock arm, the screen plate closing the fitting port of the first connector housing when the retaining projection is urged by the second connector housing, and opening the fitting port to allow the first connection-detection terminal to fit to the second connection-detection terminal through the fitting port when the retaining projection is engaged with the engagement portion.

Brief Summary Text (26):
According to the seventh aspect of the present invention, it is preferable that, when the first and second connector housings are in a half-fitted condition, the retaining projection of the lock arm abuts against an inner surface of the second connector housing so that the lock arm is downwardly urged toward the outer surface of the first connector housing thereby closing the fitting port with the screen plate, and the second connection-detection terminal is abutted against the screen plate, and when the first and second connector housings are in a completely-fitted condition, the retaining projection is engaged with the engagement portion formed in the inner surface of the second connector housing so that the screen plate opens the fitting port to allow the first connection-detection terminal to fit to the second connection-detection terminal through the fitting port.

Brief Summary Text (29):
Therefore, even when the connector fitting operation proceeds, the second connection-detection terminal, received in the second connector housing, can not enter the fitting port in the first connector housing, so that the spring portion is compressively deformed along the terminal fitting direction, with its distal end held against the screen plate. Therefore, the first connection-detection terminal and the second connection-detection terminal, received and held in their respective connector housings, are positively kept out of contact with each other.

Brief Summary Text (32):
Therefore, the distal end portion of the second connection-detection terminal, received in the second connector housing, projects through the fitting port in the first connector housing by the resilient force of the spring portion, so that the

second connection-detection terminal is positively fittingly connected to the first connection-detection terminal received in the first connector housing. Therefore, this electrical connection between the first and second connection-detection terminals is detected, thus positively detecting the completely-fitted condition of the two connector housings.

Detailed Description Text (22):
Therefore, even when the connector-fitting operation thus proceeds, the male connection-detection terminal 62, received in the female connector 34, can not enter the fitting port 45a of the terminal receiving chamber 45, receiving the female connection-detection terminal 48, so that the spring portion 62b is compressively deformed along the terminal fitting direction, with the tongue-like portion 62c held against the shutter 55. Therefore, the female connection-detection terminal 48 and the male connection-detection terminal 62, received and held respectively in the male and female connectors 33 and 34, are positively kept out of contact with each other.

Detailed Description Text (34):
In the half-fitting detection connector of the present invention, during the connector fitting operation, the male connection-detection terminal-fitting port in the first connector is closed by the screen plate formed at the distal end of the lock arm. Therefore, the male connection-detection terminal, received in the second connector, can not enter the fitting port for the female connection-detection terminal in the first connector, so that the spring portion is compressively deformed along the terminal fitting direction, with its distal end held against the screen plate. Therefore, the female connection-detection terminal and the male connection-detection terminal are positively kept out of contact with each other.

Detailed Description Text (37):
Therefore, the distal end portion of the male connection-detection terminal, received in the second connector, projects through the fitting port in the first connector by the resilient force of the spring portion, so that the male connection-detection terminal is positively fittingly connected to the female connection-detection terminal received in the first connector. Therefore, this electrical connection between the female and male connection-detection terminals is detected, thus positively detecting the completely-fitted condition of the two connectors.

CLAIMS:

1. The half-fitting detection electrical connector, comprising:

a first connector housing including a terminal receiving chamber having fitting port formed therein;

a first connection-detection terminal receivable in the first connector housing;

a second connector housing fittable to the first connector housing, the second connector housing including an engagement portion;

a second connection-detection terminal receivable in the second connector housing, and insertable into to the first connection-detection terminal, the second connection-detection terminal including a spring portion which can be compressively deformed along a fitting direction;

a lock arm formed on the first connector housing, and substantially extending in said fitting direction of the first and second connector housings, the lock arm including a retaining projection, the lock arm retaining the first and second connector housings in a fitted condition when the retaining projection is engaged with the engagement portion of the second connector housing; and

a screen plate formed on a distal end of the lock arm, the screen plate closing the fitting port of the first connector housing when the retaining projection is urged by the second connector housing, and opening the fitting port to allow the first connection-detection terminal to fit to the second connection-detection terminal through the fitting port when the retaining projection is engaged with the engagement portion.

7. A half-fitting detection connector according to claim 6, wherein, when the first and second connector housings are in a half-fitted condition, the retaining projection of the lock arm abuts against an inner surface of the second connector housing so that the lock arm is downwardly urged toward the outer surface of the first connector housing thereby closing the fitting port with the screen plate, and the second connection-detection terminal is abutted against the screen plate, and when the first and second connector housings are in a completely-fitted condition, the retaining projection is engaged with the engagement portion formed in the inner surface of the second connector housing so that the screen plate opens the fitting port to allow the first connection-detection terminal to fit to the second connection-detection terminal through the fitting port.

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